result of the longest matching prefix search. The Office Action rejects claims 1-30 under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,018,524 to Turner et al. (hereinafter "Turner") in view of U.S. Patent No. 6,813,620 to Lin et al. (hereinafter "Lin"). Applicant respectfully traverses the above rejection for at least the reasons set forth below.

REJECTION UNDER 35 U.S.C. § 101

The Office Action rejects claims 1-30 under 35 U.S.C. § 101 as allegedly lacking patentable utility because "there is no statement [in the claims] justifying usefulness" of the result of the longest matching prefix search.

As stated in MPEP § 2107, "an applicant need only provide one credible assertion of specific and substantial utility for each claimed invention to satisfy the utility requirement." In addition, "any rejection based on lack of utility should include a detailed explanation why the claimed invention has no specific and substantial credible utility." Id. Applicant submits that the requisite assertion of utility is satisfied by the disclosure. As the Office Action noted, one such utility is faster IP address searching. In addition, Applicant is unaware of any requirement that the claims include a statement of utility; utility is "assessed from the perspective of one of ordinary skill in the art in view of the disclosure and any other evidence of record." Id.

Accordingly, Applicant respectfully requests that the rejection of claims 1-30 under 35 U.S.C. § 101 be withdrawn.

REJECTION UNDER 35 U.S.C. § 103

The Office Action rejects claims 1-30 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Turner in view of Lin. Applicant respectfully traverses this rejection. Applicant respectfully submits that Turner and Lin, considered singly or in combination, fail to disclose, teach, or suggest the subject matter as recited in independent claims 1, 13, and 19.

Claims 1 and 13 recite executing a "plurality of search instances in parallel, each search instance" searching in a different range or sub-range of the search area. This subject matter relates to dividing a search range into a number of evenly sized sub-ranges and using multiple search instances to perform searches on each of the smaller sub-ranges. By parallelizing multiple search instances, the number of serial memory accesses is reduced to $\log_2(N/n)$.

Applicant respectfully submits that Turner does not disclose, teach, or suggest this subject matter. The algorithm of Turner begins searching at the median length prefix table. See col. 12, ln. 34-50. If the algorithm obtains a match at a prefix-only node, the process stops. Id. If there is a match with a marker only or prefix node with a marker, the process begins searching the table corresponding to the median among all prefix lengths strictly greater than m. Id. If no match was obtained, the process moves to the right by searching the table corresponding to the median among all prefix lengths strictly less than m. Id. This process continues until a match is found or all prefix lengths have been searched. The algorithm of Turner therefore uses a single search instance to iteratively narrow the search range. In other words, the algorithm of Turner searches prefix-lengths one at a time using a single search instance and therefore does not

execute a "plurality of search instances in parallel, each search instance" searching in a different range of the search area.

Applicant respectfully submits that Lin also does not disclose, teach, or suggest the subject matter quoted above. The system of Lin performs a simple binary search to search a table on a network device. See col. 13, ln. 15-33. In order to increase device speed, each table may be divided into a plurality of parallel memory banks. See col. 13, ln. 47-51. The system of Lin executes a number of parallel searches corresponding to the number of memory banks, as shown in FIG. 10. See col. 13, ln. 55-57. The system of Lin therefore uses multiple searches in order to perform a number of binary searches at the same time and does not use a plurality of search instances in parallel to perform the same search. In other words, each search in Lin is independent of the other searches and searches a distinct memory bank, not a different range or sub-range of the search area in parallel.

Consequently, Applicant respectfully submits that the combination of Turner and Lin fails to disclose, teach, or suggest executing a "plurality of search instances in parallel, each search instance" searching in a different range or sub-range of the search area, as recited in claims 1 and 13.

Claim 19 recites "a plurality of search instances for performing a plurality of rounds of parallel binary LPM searches in their respectively assigned portions of the initial search area." This subject matter relates to dividing a search range into a number of evenly sized sub-ranges and using multiple search instances to perform searches on each of the smaller sub-ranges. By

parallelizing multiple search instances, the number of serial memory accesses is reduced to $\log_2(N/n)$.

Applicant respectfully submits that Turner does not disclose, teach, or suggest this subject matter. As discussed with respect to claims 1 and 13, the algorithm of Turner begins searching at the median length prefix table. See col. 12, ln. 34-50. If the algorithm obtains a match at a prefix-only node, the process stops. Id. If there is a match with a marker only or prefix node with a marker, the process begins searching the table corresponding to the median among all prefix lengths strictly greater than m. Id. If no match was obtained, the process moves to the right by searching the table corresponding to the median among all prefix lengths strictly less than m. Id. This process continues until a match is found or all prefix lengths have been searched. The algorithm of Turner therefore uses a single search instance to iteratively narrow the search range. In other words, the algorithm of Turner searches prefix-lengths one at a time using a single search instance and therefore does not use "a plurality of search instances for performing a plurality of rounds of parallel binary LPM searches in their respectively assigned portions of the initial search area" (emphasis added).

Applicant respectfully submits that Lin also does not disclose, teach, or suggest the subject matter quoted above. As discussed with respect to claims 1 and 13, the system of Lin performs a simple binary search to search a table on a network device. See col. 13, ln. 15-33. In order to increase device speed, each table may be divided into a plurality of parallel memory banks. See col. 13, ln. 47-51. The system of Lin executes a number of parallel searches corresponding to the number of memory banks, as shown in FIG. 10. See col. 13, ln. 55-57. The

system of Lin therefore uses multiple searches in order to perform a number of binary searches at the same time and does not use a plurality of search instances in parallel to perform the same search. In other words, each search in Lin is independent of the other searches and searches a distinct memory bank, not a different assigned portion of the initial search area.

Consequently, Applicant respectfully submits that the combination of Turner and Lin fails to disclose, teach, or suggest "a plurality of search instances for performing a plurality of rounds of parallel binary LPM searches in their respectively assigned portions of the initial search area," as recited in claim 19.

At least by virtue of the failure of both Turner and Lin to disclose, teach, or suggest the above subject matter of claims 1, 13, and 19, the Office Action has failed to establish a *prima facie* case of obviousness as required under 35 U.S.C. § 103. Claims 2-12 depend from allowable claim 1 and are also allowable over Turner in view of Lin at least by virtue of their dependencies. Claims 14-18 depend from allowable claim 13 and are also allowable over Turner in view of Lin at least by virtue of their dependencies. Claims 20-30 depend from allowable claim 19 and are also allowable over Turner in view of Lin at least by virtue of their dependencies. For at least the forgoing reasons, Applicant respectfully requests that the rejection of claims 1-30 under 35 U.S.C. § 103 be withdrawn.

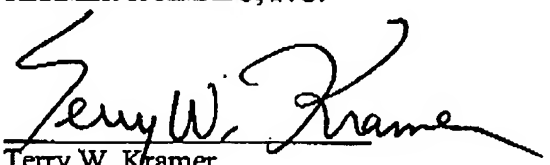
CONCLUSION

In view of the above, allowance of this application is now believed to be in order, and such action is hereby solicited. However, should the Examiner have any further comments or

suggestions, it is respectfully requested that the Examiner telephone the undersigned attorney in order to expeditiously resolve any outstanding issues.

In the event that the fees submitted prove to be insufficient in connection with the filing of this paper, please charge our Deposit Account Number 50-0578 and please credit any excess fees to such Deposit Account.

Respectfully submitted,
KRAMER & AMADO, P.C.



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